

Product Environmental Profile

DOE 2016 ENERGY EFFICIENT EX TRANSFORMERS
15kVA-1000kVA (Copper windings)





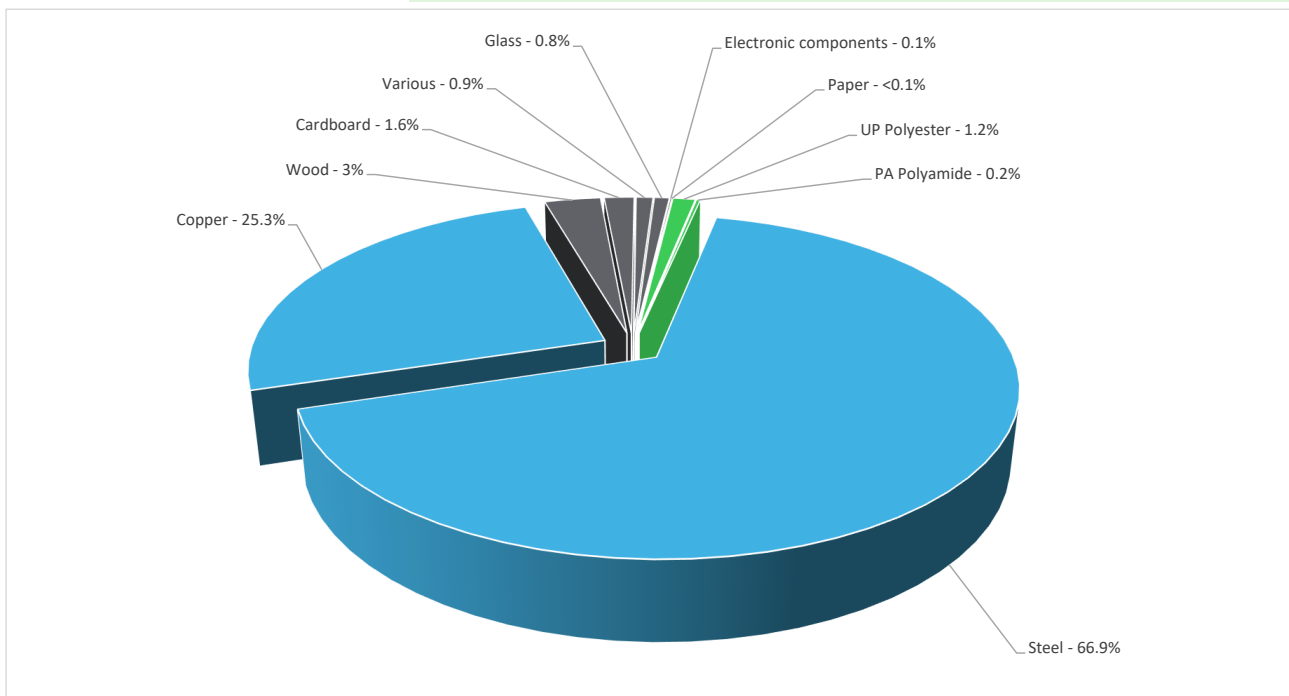
General information

Reference product	DOE 2016 ENERGY EFFICIENT EX TRANSFORMERS - EX75T3HCU
Description of the product	The EX75T3HCU is an Energy Efficient Transformer that provides the final voltage transformation in the electric power distribution system, stepping down the voltage used in the distribution lines (75kVA) to the level used by the end customer while meeting the 2016 U.S. Department of Energy (DOE) energy efficient requirements.
Description of the range	Single product
Functional unit	Other switchgear and controlgear solutions mentioned in the scope (e.g. fuses TC32, all-or-nothing relays TC94, Measuring relays and protection equipment TC95), apply the general rules of PCR and mention in the accompanying report the functional unit, the reference product characteristics, the reference lifetime and the use scenario which are applied consistently with the relevant IEC technical standards.
Specifications are:	To step down a distribution line voltage of 75kVA to voltage levels used by the end customer at the energy efficiency requirements defined by the DOE for 20 years. Rated operational power in VA - 75 kVA. Primary Voltage - 480 V delta Secondary voltage - 208Y/120 V Phase - 3 phase. Type of cooling – Natural Convection Number of Windings – 220 Degree of protection - UL type 2, UL type 3R, with 7400WS18M19M20M



Constituent materials

Reference product mass 366502.34 g including the product, its packaging, additional elements and accessories



Plastics	1.4%
Metals	92.2%
Others	6.4%



Substance assessment

Details of ROHS and REACH substances information are available on the Schneider-Electric website

<https://www.se.com>

**Additional environmental information**

End Of Life	Recyclability potential:	96%	The recyclability rate was calculated from the recycling rates of each material making up the product based on REEECYLAB tool developed by Ecosystem, for components/materials not covered by the tool, data from the EIME database and the related PSR was taken. If no data was found a conservative assumption was used (0% recyclability).
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**Environmental impacts**

Reference service life time	20 years		
Product category	Other equipments - Passive product - continuous operation		
Life cycle of the product	The manufacturing, the distribution, the installation, the use and the end of life were taken into consideration in this study		
Electricity consumption	The electricity consumed during manufacturing processes is considered for each part of the product individually, the final assembly generates a negligible consumption		
Installation elements	The product does not require any installation operations.		
Use scenario	For the Use phase scenario, the product is at an Occupied building load level 33% of the time with a power use of 341W and at an Unoccupied building load level 67% of the time with a power use of 143W, for 20 years.		
Time representativeness	The collected data are representative of the year 2024		
Technological representativeness	The Modules of Technologies such as material production, manufacturing processes and transport technology used in the PEP analysis (LCA EIME in the case) are Similar and Representative of the actual type of technologies used to make the product.		
Final assembly site	United States		
Geographical representativeness	Rest of the World		
Energy model used	[A1 - A3]	[A5]	[B6]
	Electricity Mix; Low voltage; 2020; United States, US	Electricity Mix; Low voltage; 2020; United States, US	Electricity Mix; Low voltage; 2020; United States, US
			[C1 - C4]
			Electricity Mix; Low voltage; 2020; United States, US

Detailed results of the optional indicators mentioned in PCRed4 are available in the LCA report and on demand in a digital format - Country Customer Care Center - <http://www.se.com/contact>

Mandatory Indicators		DOE 2016 ENERGY EFFICIENT EX TRANSFORMERS - EX75T3HCU						
Impact indicators	Unit	Total (without Module D)	[A1 - A3] - Manufacturing	[A4] - Distribution	[A5] - Installation	[B1 - B7] - Use	[C1 - C4] - End of life	[D] - Benefits and loads
Contribution to climate change	kg CO2 eq	2.02E+04	1.73E+03	6.92E+01	1.82E+01	1.75E+04	8.81E+02	-1.12E+03
Contribution to climate change-fossil	kg CO2 eq	2.01E+04	1.73E+03	6.92E+01	7.44E-01	1.75E+04	8.60E+02	-1.10E+03
Contribution to climate change-biogenic	kg CO2 eq	6.41E+01	9.28E-01	0*	1.74E+01	2.50E+01	2.07E+01	-1.98E+01
Contribution to climate change-land use and land use change	kg CO2 eq	3.24E-04	1.56E-05	0*	0*	0*	3.08E-04	0.00E+00
Contribution to ozone depletion	kg CFC-11 eq	3.22E-04	2.43E-04	1.06E-07	3.22E-08	6.94E-05	9.69E-06	-1.94E-04
Contribution to acidification	mol H+ eq	1.10E+02	2.58E+01	4.39E-01	7.66E-03	7.94E+01	4.70E+00	-2.02E+01
Contribution to eutrophication, freshwater	kg (PO4) ³⁻ eq	6.45E-01	3.20E-02	2.60E-05	1.32E-06	3.13E-02	5.81E-01	-1.65E-03
Contribution to eutrophication marine	kg N eq	1.26E+01	1.52E+00	2.06E-01	2.88E-03	1.01E+01	7.70E-01	-7.46E-01
Contribution to eutrophication, terrestrial	mol N eq	1.49E+02	1.72E+01	2.26E+00	3.41E-02	1.20E+02	9.08E+00	-8.73E+00
Contribution to photochemical ozone formation - human health	kg COVNM eq	4.29E+01	6.37E+00	5.69E-01	7.46E-03	3.32E+01	2.73E+00	-3.80E+00
Contribution to resource use, minerals and metals	kg Sb eq	5.09E-01	4.88E-01	2.73E-06	0*	2.33E-03	1.89E-02	-4.15E-01
Contribution to resource use, fossils	MJ	4.84E+05	4.12E+04	9.66E+02	1.08E+01	3.89E+05	5.31E+04	-2.48E+04
Contribution to water use	m3 eq	2.99E+03	1.42E+03	2.63E-01	2.50E+00	8.18E+02	7.54E+02	-1.11E+03

Inventory flows Indicators		DOE 2016 ENERGY EFFICIENT EX TRANSFORMERS - EX75T3HCU						
Inventory flows	Unit	Total (without Module D)	[A1 - A3] - Manufacturing	[A4] - Distribution	[A5] - Installation	[B1 - B7] - Use	[C1 - C4] - End of life	[D] - Benefits and loads
Contribution to use of renewable primary energy excluding renewable primary energy used as raw material	MJ	4.37E+04	1.08E+03	0*	0*	4.22E+04	4.53E+02	-5.50E+02
Contribution to use of renewable primary energy resources used as raw material	MJ	3.55E+02	3.55E+02	0*	0*	0*	0*	0.00E+00
Contribution to total use of renewable primary energy resources	MJ	4.40E+04	1.44E+03	0*	0*	4.22E+04	4.53E+02	-5.50E+02
Contribution to use of non renewable primary energy excluding non renewable primary energy used as raw material	MJ	4.84E+05	4.10E+04	9.66E+02	0*	3.89E+05	5.31E+04	-2.48E+04
Contribution to use of non renewable primary energy resources used as raw material	MJ	2.13E+02	2.13E+02	0*	0*	0*	0*	0.00E+00
Contribution to total use of non-renewable primary energy resources	MJ	4.84E+05	4.12E+04	9.66E+02	0*	3.89E+05	5.31E+04	-2.48E+04
Contribution to use of secondary material	kg	5.57E-03	5.57E-03	0*	0*	0*	0*	0.00E+00
Contribution to use of renewable secondary fuels	MJ	0.00E+00	0*	0*	0*	0*	0*	0.00E+00
Contribution to use of non renewable secondary fuels	MJ	0.00E+00	0*	0*	0*	0*	0*	0.00E+00
Contribution to net use of freshwater	m³	6.97E+01	3.30E+01	0*	5.82E-02	1.91E+01	1.76E+01	-2.59E+01
Contribution to hazardous waste disposed	kg	4.06E+04	4.02E+04	0*	0*	3.79E+02	0*	-3.43E+04
Contribution to non hazardous waste disposed	kg	3.87E+03	1.23E+03	2.43E+00	1.74E+01	2.60E+03	1.89E+01	-7.71E+02
Contribution to radioactive waste disposed	kg	1.17E+00	5.46E-01	1.73E-03	3.83E-04	6.21E-01	2.31E-03	-3.56E-01
Contribution to components for reuse	kg	0.00E+00	0*	0*	0*	0*	0*	0.00E+00
Contribution to materials for recycling	kg	3.69E+02	3.84E+01	0*	0*	0*	3.30E+02	0.00E+00
Contribution to materials for energy recovery	kg	0.00E+00	0*	0*	0*	0*	0*	0.00E+00
Contribution to exported energy	MJ	4.65E+00	1.38E+00	0*	0*	0*	3.27E+00	0.00E+00

* represents less than 0.01% of the total life cycle of the reference flow

Contribution to biogenic carbon content of the product	kg of C	0.00E+00
Contribution to biogenic carbon content of the associated packaging	kg of C	5.95E+00

* The calculation of the biogenic carbon is based on the Ademe for the Cardboard (28%), EN16485 for Wood (39,52%), and APESA/RECORD for Paper (37,8%)


Mandatory Indicators		DOE 2016 ENERGY EFFICIENT EX TRANSFORMERS - EX75T3HCU							
Impact indicators	Unit	[B1 - B7] - Use	[B1]	[B2]	[B3]	[B4]	[B5]	[B6]	[B7]
Contribution to climate change	kg CO2 eq	1.75E+04	0*	0*	0*	0*	0*	1.75E+04	0*
Contribution to climate change-fossil	kg CO2 eq	1.75E+04	0*	0*	0*	0*	0*	1.75E+04	0*
Contribution to climate change-biogenic	kg CO2 eq	2.50E+01	0*	0*	0*	0*	0*	2.50E+01	0*
Contribution to climate change-land use and land use change	kg CO2 eq	0*	0*	0*	0*	0*	0*	0*	0*
Contribution to ozone depletion	kg CFC-11 eq	6.94E-05	0*	0*	0*	0*	0*	6.94E-05	0*
Contribution to acidification	mol H+ eq	7.94E+01	0*	0*	0*	0*	0*	7.94E+01	0*
Contribution to eutrophication, freshwater	kg (PO4) ³⁻ eq	3.13E-02	0*	0*	0*	0*	0*	3.13E-02	0*
Contribution to eutrophication marine	kg N eq	1.01E+01	0*	0*	0*	0*	0*	1.01E+01	0*
Contribution to eutrophication, terrestrial	mol N eq	1.20E+02	0*	0*	0*	0*	0*	1.20E+02	0*
Contribution to photochemical ozone formation - human health	kg COVNM eq	3.32E+01	0*	0*	0*	0*	0*	3.32E+01	0*
Contribution to resource use, minerals and metals	kg Sb eq	2.33E-03	0*	0*	0*	0*	0*	2.33E-03	0*
Contribution to resource use, fossils	MJ	3.89E+05	0*	0*	0*	0*	0*	3.89E+05	0*
Contribution to water use	m3 eq	8.18E+02	0*	0*	0*	0*	0*	8.18E+02	0*

Inventory flows Indicators		DOE 2016 ENERGY EFFICIENT EX TRANSFORMERS - EX75T3HCU								
Inventory flows	Unit	[B1 - B7] - Use	[B1]	[B2]	[B3]	[B4]	[B5]	[B6]	[B7]	
Contribution to use of renewable primary energy excluding renewable primary energy used as raw material	MJ	4.22E+04	0*	0*	0*	0*	0*	4.22E+04	0*	
Contribution to use of renewable primary energy resources used as raw material	MJ	0*	0*	0*	0*	0*	0*	0*	0*	
Contribution to total use of renewable primary energy resources	MJ	4.22E+04	0*	0*	0*	0*	0*	4.22E+04	0*	
Contribution to use of non renewable primary energy excluding non renewable primary energy used as raw material	MJ	3.89E+05	0*	0*	0*	0*	0*	3.89E+05	0*	
Contribution to use of non renewable primary energy resources used as raw material	MJ	0*	0*	0*	0*	0*	0*	0*	0*	
Contribution to total use of non-renewable primary energy resources	MJ	3.89E+05	0*	0*	0*	0*	0*	3.89E+05	0*	
Contribution to use of secondary material	kg	0*	0*	0*	0*	0*	0*	0*	0*	
Contribution to use of renewable secondary fuels	MJ	0*	0*	0*	0*	0*	0*	0*	0*	
Contribution to use of non renewable secondary fuels	MJ	0*	0*	0*	0*	0*	0*	0*	0*	
Contribution to net use of freshwater	m³	1.91E+01	0*	0*	0*	0*	0*	1.91E+01	0*	
Contribution to hazardous waste disposed	kg	3.79E+02	0*	0*	0*	0*	0*	3.79E+02	0*	
Contribution to non hazardous waste disposed	kg	2.60E+03	0*	0*	0*	0*	0*	2.60E+03	0*	
Contribution to radioactive waste disposed	kg	6.21E-01	0*	0*	0*	0*	0*	6.21E-01	0*	
Contribution to components for reuse	kg	0*	0*	0*	0*	0*	0*	0*	0*	
Contribution to materials for recycling	kg	0*	0*	0*	0*	0*	0*	0*	0*	
Contribution to materials for energy recovery	kg	0*	0*	0*	0*	0*	0*	0*	0*	
Contribution to exported energy	MJ	0*	0*	0*	0*	0*	0*	0*	0*	

* represents less than 0.01% of the total life cycle of the reference flow

Life cycle assessment performed with EIME version v6.2.4, database version 2024-11 in compliance with ISO14044, EF3.1 method is applied, for biogenic carbon storage, assessment methodology 0/0 is used

Please note that the values given above are only valid within the context specified and cannot be used directly to draw up the environmental assessment of an installation.

Registration number :	SCHN-00001-V01.01-EN	Drafting rules	PCR-4-ed4-EN-2021 09 06
		Supplemented by	PSR-0005-ed3.1-EN-2023 12 08
Verifier accreditation N°	VH08	Information and reference documents	www.pep-ecopassport.org
Date of issue	12-2024	Validity period	5 years
Independent verification of the declaration and data, in compliance with ISO 14025 : 2006			
Internal		External X	
The PCR review was conducted by a panel of experts chaired by Julie Orgelet (DDemain)			
PEPs are compliant with XP C08-100-1:2016 and EN 50693:2019 or NF E38-500 :2022			
The components of the present PEP may not be compared with components from any other program.			
Document complies with ISO 14025:2006 "Environmental labels and declarations. Type III environmental declarations"			
			

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